

# Stacked Bar Plot with Error Bars

## Aim

Create a stacked bar plot with error bars in Python using matplotlib.

## Algorithm

1. Import required libraries (matplotlib.pyplot and numpy)
2. Define data for men and women (means and standard deviations)
3. Set up the plot (figure and axis)
4. Create the stacked bar plot a. Plot men's data b. Plot women's data on top of men's data c. Add error bars for both sets
5. Customize the plot (labels, title, legend)
6. Display the plot

## Code

```
import matplotlib.pyplot as plt
import numpy as np

n = 5
men_means = (22, 30, 35, 35, 26)
women_means = (25, 32, 30, 35, 29)
men_std = (4, 3, 4, 1, 5)
women_std = (3, 5, 2, 3, 3)

fig, ax = plt.subplots()

index = np.arange(n)
bar_width = 0.35

opacity = 0.8
error_config = {'ecolor': '0.3'}

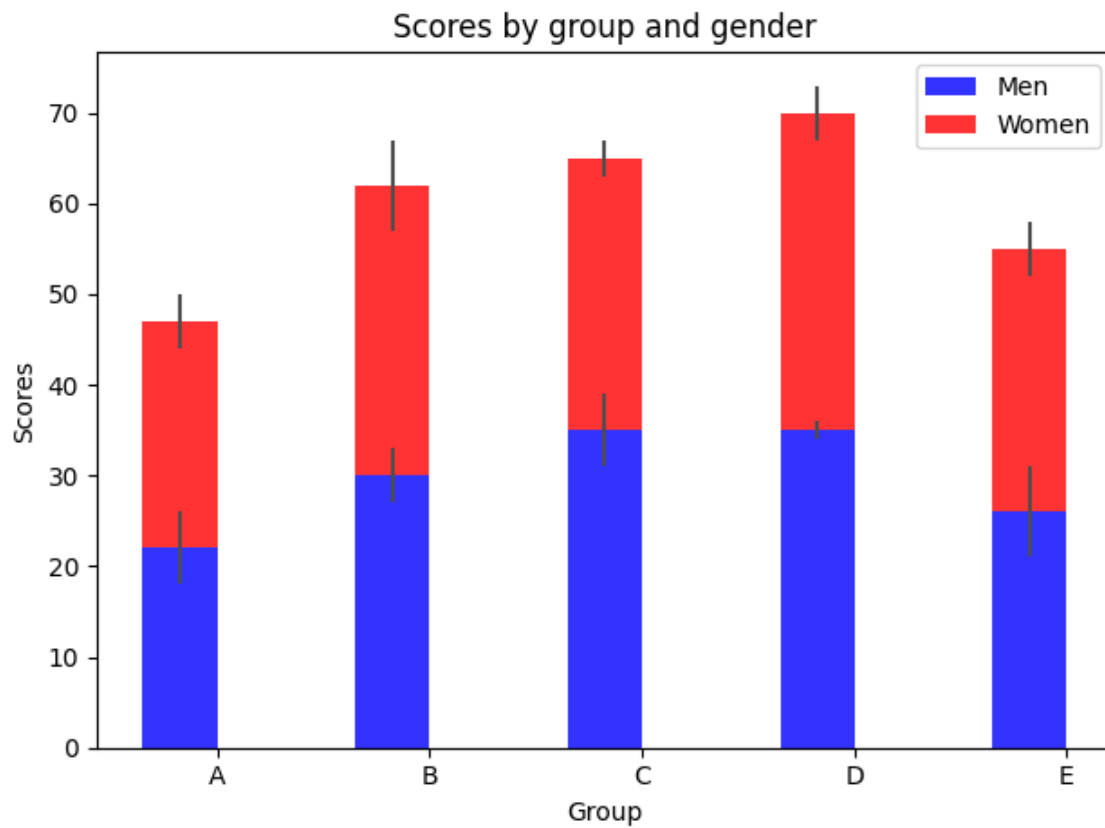
rects1 = ax.bar(index, men_means, bar_width,
                 alpha=opacity, color='b',
                 yerr=men_std, error_kw=error_config,
                 label='Men')

rects2 = ax.bar(index, women_means, bar_width,
                 alpha=opacity, color='r',
                 yerr=women_std, error_kw=error_config,
                 label='Women', bottom=men_means)

ax.set_xlabel('Group')
ax.set_ylabel('Scores')
ax.set_title('Scores by group and gender')
ax.set_xticks(index + bar_width / 2)
ax.set_xticklabels(('A', 'B', 'C', 'D', 'E'))
ax.legend()
```

```
fig.tight_layout()  
plt.show()
```

## Output



## Result

The code successfully creates a stacked bar plot with error bars, showing scores for men and women across five groups (A, B, C, D, E). The men's scores are represented by blue bars at the bottom, while women's scores are stacked on top in red. Error bars indicate the standard deviation for each group.